

## REMARKS

In view of the following remarks, Applicant requests favorable reconsideration of the above-identified application.

Claims 1-16, 18-24, 26-35, and 37-41 remain pending in this application, with Claims 1, 16, and 22 being independent.

Claims 1-16, 18-24, 26-35, and 37-41 stand objected to because of the use of the term “optic axis” in the claims. Specifically, the Office Action states that the term “optic axis” is being used in the claims to mean “optical axis.” Consequently, it is the position in the Office Action that Applicant is improperly redefining the term “optic axis” to mean “optical axis.” Applicant respectfully traverses this objection. Applicant submits that the term “optic axis” is correctly used in the claims, and is not intended to be interpreted as “optical axis.” Accordingly, Applicant requests withdrawal of the objection.

Claims 1-5, 22-24, and 26-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Japanese Application No. 9-211222 (Inoue, et al.) in view of the Physics Hypertext book at <http://hypertextbook.com/physics/waves/refraction> (*Refraction*). Claims 6-15, 29-35, and 37-41 stand rejected under 35 U.S.C. § 103 as being unpatentable over Inoue, et al. in view of *Refraction*, and in further view of U.S. Patent No. 6,724,531 (Oono). Claims 16 and 18-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Oono in view of Inoue, et al. and *Refraction*, and in further view of U.S. Patent No. 6,075,581 (Shirochiu). Applicant traverses these rejections.

Independent Claims 1 and 16 are directed to an optical low-pass filter and an image sensing unit, respectively. The filter and unit each include at least one birefringent plate made of a uniaxial single crystal having a refractive index difference of not less than 0.02, for

ordinary and extraordinary rays. The filter/unit satisfies one of  $10^\circ < \theta < 27^\circ$  and  $61^\circ < \theta < 80^\circ$ . In those equations,  $\theta$  is an angle an optic axis of the birefringent plate makes with a normal to a surface of the birefringent plate.

Independent Claim 22 recites, in part, a filter having a first birefringent plate and a second birefringent plate. The filter satisfies one of  $10^\circ < \theta_o < 27^\circ$  and  $61^\circ < \theta_o < 80^\circ$ . In those equations,  $\theta_o$  is the angle an optic axis of at least one of the first and second birefringent plates makes with a normal to an entrance or exit surface of the birefringent plate.

Inoue, et al. is directed to a polarizing element. The Office Action cites that document as describing, among other features, a device having a birefringent plate, wherein the device satisfies  $10^\circ < \theta < 27^\circ$ . Specifically, the Office Action refers to the disclosure in the abstract of that document, which shows an angle  $\theta$ , where  $0^\circ \leq \theta < 20^\circ$ .

Applicant respectfully submits that the  $\theta$  referred to in the abstract of Inoue, et al. is different than the  $\theta$  referred to in the present application.

In Inoue, et al.,  $\theta$  represents an angle made by the normals of two planes constituting a birefringent plate, as discussed in paragraph [0012] of that document. (For the Examiner's convenience, attached to this Response is an English translation of Inoue, et al.) In the present application,  $\theta$  represents an angle made by an optic axis and a normal to a plane. Accordingly, Applicant submits that the numerical range for  $\theta$  discussed in the abstract of Inoue, et al. does not suggest either numerical range of  $\theta$  recited in the independent claims of the present application.

*Refraction* is merely recited in the Office Action as describing the use of uniaxial birefringent materials having refractive index differences of not less than 0.02, for ordinary and extraordinary rays. Oono is merely recited in the Office Action as describing the

use of an image sensing element with an optical low-pass filter in front of it. Applicant submits that these documents fail to remedy the deficiencies discussed above with respect to Inoue et al.

Shirochi is directed to a liquid crystal display device having a birefringent filter. The Office Action cites that document as explicitly teaching an image sensing unit that satisfies  $0.015 < p/d < 0.045$ , where  $p$  is the pixel pitch of the image sensing surface in a long side direction. Applicant notes that Shirochi is directed to a liquid crystal *display*, and does not describe the use of an image sensing element. Consequently, Applicant submits that Shirochi does not suggest the pixel pitch of an image sensing surface in a long side direction, inasmuch as there is no discussion of an image sensing unit therein. In addition, Applicant submits that this document fails to remedy the deficiencies discussed above with respect to Inoue, et al.

Accordingly, Applicant submits that Inoue, et al., Oono, Shirochi, and *Refraction*, taken alone or in combination, fail to disclose or suggest, at least, the features of a filter/unit having at least one birefringent plate, wherein the filter/unit satisfies one of  $10^\circ < \theta < 27^\circ$  and  $61^\circ < \theta < 80^\circ$ , where  $\theta$  is the angle an optic axis of the at least one birefringent plate makes with a normal to a surface of the at least one birefringent plate, as generally recited in independent Claims 1 and 16. Those documents also fail to disclose or suggest a filter having first and second birefringent plates, wherein the filter satisfies one of  $10^\circ < \theta_o < 27^\circ$  and  $61^\circ < \theta_o < 80^\circ$ , where  $\theta_o$  is the angle an optic axis of at least one of the first and second birefringent plates makes with a normal to an entrance or exit surface of the birefringent plate, as recited in independent Claim 22.

The remaining claims in the present application are dependent claims which depend from the independent claims discussed above, and thus are patentable over the cited documents for reasons noted above with respect to those independent claims. In addition, each

recites features of the invention still further distinguishing it from the applied documents.


Applicant requests favorable and independent consideration thereof.

For the foregoing reasons, Applicant requests withdrawal of the outstanding rejections under 35 U.S.C. § 103.

Applicant submits that this application is in condition for allowance, and a Notice of Allowance is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

  
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